
MASTER PROGRAM

for

**EIGHTEENTH INTERNATIONAL CONFERENCE
APPLICATION OF MATHEMATICS IN TECHNICAL AND NATURAL
SCIENCES
JUNE 27-JULY 2, 2026**

**All times in the program are GMT+3 (East-European time). Please
synchronize your local time with respect to GMT and join the announced
Zoom sessions on time.**

SATURDAY, JUNE 27, 2026

FLAMINGO GRAND HALL

Join Zoom Meeting **08:00-19:00**

<https://us02web.zoom.us/j/86404145645?pwd=b1DaAcQ8OaZScPHzDaYQBU2tc1Gjld.1>

Meeting ID: 864 0414 5645

Passcode: 007095

Meeting chat link

<https://us02web.zoom.us/jc/86404145645>

Hosted by Michail Todorov

08:30-09:00 OPENING SESSION

09:00-10:00 PLENARY LECTURE: Daniel Dantchev
Title: *Casimir Forces in the One-Dimensional Three-State Potts*

Model

10:00-10:30 BREAK

Session: *E-LEARNING*

10:30-11:00

Speaker: Mikhail Kolev

Title: *Quantile-Regression Analysis of Blood-Pressure Determinants Across the Conditional Distribution*

11:00-11:30

Speaker:: Irina Naskinova

A Single-View Occupancy Network for Implicit 3D Surface Reconstruction from RGB Images

11:30-12:00

Speaker: Mikhail Kolev

Title: *Functional-Data Clustering of Continuous Glucose Monitoring Profiles for Glycemic Phenotyping*

Session MATHEMATICAL PHYSICS

12:00-12:30

Speaker: Ganna Shyshkanova

Title: *Analytical and Numerical Modelling of Vibrations of Thin-Walled Elastic Structures Based on Potential Theory*

Lunch Break

14:00-15:00

PLENARY TALK: Shihui Zhu

Title: *Dynamical Threshold for the L^2 -critical NLS with a Perturbation*

Session MATHEMATICAL PHYSICS

15:00-15:30

Speaker: Alex Fedoseyev

Title: *Kink-Type Solutions and Streak-Like Structures in Turbulent Channel Flow Using the Alexeev Hydrodynamic*

Framework

15:30-16:00

Speaker: Alex Fedoseyev

Title: *Alexeev Hydrodynamic Equations for Turbulent Flows: Analytical and Numerical Solutions with Experimental Validation*

Break

Session E-LEARNING

16:30-17:00

Speaker: Gleb Haynatzki

Title: *Convexification of Kolmogorov-Arnold Net (KAN):
Special Cases*

17:00-17:30

Speaker: Roman Haynatzki

Title: *M*Heterogeneous Causal Effects of Donor Hormonal Resuscitation on Heart-Transplant Survival: A Doubly Robust IPW–Cox Framework with Phenotype-Stratified Treatment Effects

17:30-18:00

Speaker: Stefan Rizanov

Title: *Audio Transformers for Wildfire Sound Detection – A Comparative Analysis*

Session MATHEMATICAL MODELING

18:00-18:30

Speaker: Byulent Idirizov

Title: *E Maintaining Maximum Profit via Profit-Maximizing Zones under Fixed and Variable Pricing*

20:00

WELCOME PARTY – RESTAURANT, FLAMINGO
GRAND HOTEL

SUNDAY, JUNE 28, 2026

FLAMINGO GRAND HALL

Join Zoom Meeting **08:00-19:00**

<https://us02web.zoom.us/j/84347451867?pwd=PYQwIVJtMBJHtMa9DOSyVMXd9vLR.1>

Meeting ID: 843 4745 1867

Passcode: 968457

Meeting chat link

<https://us02web.zoom.us/launch/jc/84347451867>

Hosted by Michail Todorov

08:30-9:30 PLENARY LECTURE: Shuguan Ji
 Title: *Breather Solutions for the Nonlinear Wave Equation in Inhomogeneous Media*

9:30-10:00 BREAK

Session: MATHEMATICAL PHYSICS

10:00-10:30 Speaker: Bogdan Dimitrov
 Title: *Towards a General Theory of GPS Inter-satellite Communications between Moving Satellites on Arbitrary Space Trajectories Accounting for General Relativity Effects*

10:30-11:00 Speaker: Tihomir Valchev
 Title: *New S-Integrable Nonlinear Evolution Equations with Additional Constraints*

11:00-11:30 Speaker: Yuri Bozhkov
 Title: *Critical Nonlinear Elliptic and Hyperbolic PDE Systems*

11:30-12:00 Speaker: Rossen Ivanov
 Title: *Vortices Interacting with Long Surface Water Waves*

12:00-12:30 Speaker: Silvia Assenova

Title: *Transport safety -- Methodology, Quantitative and Qualitative Assessment of the Link between Meteorological Conditions and Safety*

Lunch Break

14:00-14:30 Speaker: Antonio da Silva
Title: *Electromagnetic Field-induced Metric Perturbations in General Relativity: A Weak-field Analytical Framework*

14:30-15:15 KEYNOTE TALK: Viktor Didenko
Title: *Approximate Solution of Biharmonic Problems in Multiply Connected Non-smooth Domains*

15:15-16:00 KEYNOTE TALK: Vesselin Gueorguiev
Title: *Time Reparametrization Invariance and the Hubble Tension*

Break

Session E-LEARNING

16:30-17:00 Speaker: Alex Baykin
Title: *Mathematical Modeling of Digital Documentation Adoption and Sustainability Indicators in Courier Services*

17:00-17:30 Volodymyr: Chumakov
Title: *On the Analysis of the Phase Spectrum of a TwoFrequency Signal*

17:30-18:00 Speaker: Velicka Traneva
Title: *InterCriteria Analysis of Physicochemical Quality Indicators in Commercial Gasoline Samples*

Session MATHEMATICAL PHYSICS

18:00-18:30 Speaker: Petya Gueorguieva

Title: *Fostering Student Engagement and Experiential Learning
at the STEM Center and Center for Cellular and Biomolecular
Machines, UC Merced*

18:30-19:00

Speaker: Meglena Lazarova

Title: *Distributions of order k*

MONDAY, JUNE 29, 2026

FLAMINGO GRAND HALL

Join Zoom Meeting **08:00-19:00**

<https://us02web.zoom.us/j/85823413883?pwd=8CeMa0Z0jbBd1Mu5zGEhw82aGmq1Kd.1>

Meeting ID: 858 2341 3883

Passcode: 390138

Meeting chat link

<https://us02web.zoom.us/jc/85823413883>

Hosted by Michail Todorov

08:30-9:30 PLENARY LECTURE: Feodor Borodich
 Title: *Critical Examination of Depth-Sensing Indentation
 Techniques*

9:30-10:00 BREAK

Session: BIOMATHEMATICS

10:00-10:30 Speaker: Rumen Anguelov
 Title: *A Goodness-of-Fit Measure for Nonlinear Regression of
 Cell Viability Data*

10:30-11:00 Speaker: Todor Gurov
 Title: *Stochastic Extinction and Threshold Dynamics in a
 Markovian Predator-Prey SEIRS Epidemic Model*

11:00-11:30 Speaker: Victoria Rayskin
 Title: *Dynamics of Algal Biofouling of Microplastics in the
 Ocean*

Session: CONTINUUM MECHANICS

11:30-12:00 Speaker: Gergana Chalakova

Title: *Parametric Finite Element Analysis of Depth-Dependent Nanoindentation Response under Masticatory Loading*
Relevant Conditions

Session: APPLIED ANALYSIS

12:00-12:30 Speaker: Ognyan Ognyanov
Title: *Methodologies, Hardware and Software Solutions for Surveying, 3D Modeling and Reconstruction of Natural and Archaeological Monuments*

Lunch Break

Session: NUMERICAL METHODS AND SCIENTIFIC COMPUTING

14:00-14:30 Speaker: Anastas Madzharov
Title: *Precise Calculations of Gravity Anomalies from the Geometric Height for Autonomous Air Navigation*

14:30-15:00 Speaker: Anastas Madzharov
Title: *Application of Kummer's Equation for Flight Between Two Geodesic Orthodromes in a Coordinated Turn*

15:00-15:30 Speaker: Tzvetan Ostromsky
Title: *Overview of the Studies and Some Problems of the Karst and Caves in the Kamenopole-Karlukovo Region, Northwestern Bulgaria*

15:30-16:00 Speaker: Silvi-Maria Gurova
Title: *Assessment of Systematic Risk in Investment Portfolios Using Stochastic Power Methods*

Break

Session: NUMERICAL METHODS AND SCIENTIFIC COMPUTING

16:30-17:00 Speaker: Andreas Aristotelous
Title: *Operator Learning for PDEs with Fixed Basis Representations*

Session: APPLIED ANALYSIS

17:00-17:30 Aleksandar Kirilov
Title: *Methods and Algorithms for Assessing Energy Usage by Hybrid Quantum-classical Algorithms*

17:30-18:00 Speaker: Dimitar Georgiev
Title: *Continuity in Parametric Optimization*

Session: MATHEMATICAL MODELING

18:00-18:30 Speaker: Selma Ozcag
Title: *Topological Games Related to Selective Versions of Separability*

Session: MATHEMATICAL PHYSICS

18:30-19:00 Speaker: Alex Fedoseyev
Title: *Multifunctional Luminescent Coating for Photovoltaic Applications in Space Radiation Environment*

TUESDAY, JUNE 30, 2026

FLAMINGO GRAND HALL

Join Zoom Meeting **08:00-19:00**

<https://us02web.zoom.us/j/89331074999?pwd=G3JSGm4dKizKnLR7NFz3LzGBMS6QdT.1>

Meeting ID: 893 3107 4999

Passcode: 677139

Meeting chat link

<https://us02web.zoom.us/jc/89331074999>

Hosted by Michail Todorov

08:30-9:30 **PLENARY LECTURE: Kaizhi Wang**
Title: *New Dynamical Phenomena for the Hamilton-Jacobi Equation*

9:30-10:00 BREAK

Session: APPLIED ANALYSIS

10:00-10:30 Speaker: Petar Peshev
Title: *Bank Lending, Monetary Transmission, and Financial Reform in China: A Review of the Contemporary Literature*

10:30-11:00 Speaker: Petar Peshev/R. Stamenova
Title: *Mortgage Lending Demand in the Eurozone over the 2012Q1–2025Q4 Period*

11:00-11:30	Speaker: Andrey Vassilev Title: <i>Migration Dynamics in a Spatial Model with Myopic Agents</i>
11:30-12:00	Speaker: Stoyan Apostolov Title: <i>On Fredholm integral equations with singular kernels</i>
12:00-12:30	Speaker: Venelin Todorov Title: <i>Quasi-Monte Carlo Sensitivity Analysis of the UNI-DEM Atmospheric Chemistry Model</i>

Lunch Break

14:00-15:00	PLENARY TALK: Jingli Ren Title: <i>AI for BMG</i>
15:00-16:00	PLENARY TALK: Rouxia Yao Title: <i>Novel Existence Conjectures of Higher-order Peakons/Pseudo Peakons for the Generalized J-K-CH Equations</i>
16:00-16:30	Break
16:30-17:15	KEYNOTE TALK: Igor Freie Title: <i>Cauchy Problems Describing Pseudospherical Surfaces: The Camassa-Holm and Degasperis-Procesi Cases</i>
17:15-18:45	Social Activity: Musical concert – Flamingo Grand Hall
20:00	Official Dinner

WEDNESDAY, JULY 1, 2026

3:30, July 1 Excursion to the villages of Kamen bryag and Tyulenovo,
Shabla lake. Lighthouse,
July morning - meeting of the sunrise

Meeting point: the reception of the Flamingo Grand hotel at
3:30 am

12:30-14:00 Lunch Break

FLAMINGO GRAND HALL

Join Zoom Meeting 14:00-19:00
<https://us02web.zoom.us/j/81961663530?pwd=bt8GEKLE8Yi85mFpju3vnt3rEvswbH.1>

Meeting ID: 819 6166 3530

Passcode: 115161

Meeting chat link
<https://us02web.zoom.us/jc/81961663530>

Hosted by Michail Todorov

14:00-15:00 PLENARY TALK: Zhijun Qiao
Title: *Peakon Solutions for the Camassa-Holm Type Equations
with Quadratic Nonlinearities*

Special Session *PDEs and Their Applications*

15:00-15:30 Speaker: Ran Sun
Title: *Subharmonic Melnikov Analysis of Multi-stable Systems
with Bilateral Collisions*

15:30-16:00	Speaker: Nuri Ma Title: <i>Low-frequency Vibration and Noise Mitigation in Engineering Applications</i>
16:00-16:30	Break
16:30-17:00	Speaker: Liyi Ying Title: <i>Convex Probability-Field Optimization with Edge-Adaptive Variational Priors for Sparse Segmentation on Discrete Lattices</i>
17:00-17:30	Speaker: Robert Creps Title: <i>Image Analysis and Reconstruction of a Moving Target</i> Session APPLIED ANALYSIS
17:30-18:00	Speaker: Stoyan Dimitrov Title: <i>On $\sigma\psi\phi$-cubic κ-tuples and Their Generalizations</i> Session NUMERICAL METHODS AND SCIENTIFIC COMPUTING
18:00-18:30	Slavi Georgiev Title: <i>Statistical Modeling of Energy Yield from a Manually Adjusted Photovoltaic System: A Case Study from Shkorpilovtsi, Bulgaria</i>
18:30-19:00	Cvetelina Stefanova Title: <i>Complexity Measures as Predictors of Machine Learning Performance</i>
19:00-19:30	Ivan Georgiev TBA

THURSDAY, JULY 2, 2026

FLAMINGO GRAND HALL

Join Zoom Meeting 08:00-14:00

<https://us02web.zoom.us/j/86956275666?pwd=9pffp1XsNjAbVjMv2fnJZGVerGUYOO.1>

Meeting ID: 869 5627 5666

Passcode: 581881

Meeting chat link

<https://us02web.zoom.us/jc/86956275666>

Hosted by Michail Todorov

08:30-09:30 PLENARY TALK: Chuanzhong Li
Title: *Classifications on Soliton Solutions of KP Type Systems*

09:30-10:00 Break

Special Session *PDEs and Their Applications*

10:00-10:30 Speaker: Huilin Lv
Title: *Existence and Multiplicity Results for Fractional Schroedinger Equations with Critical Growth*

10:30-11:00 Speaker: Jintao Wang
Title: *Posedness and Infinite Regularity of Invariant Measures for a Stochastic Modified Swift-Hohenberg Equation*

11:00-11:30 Speaker: Jinque Yan
Title: *Error Estimates of Some Linearized Schemes for the Logarithmic Schroedinger Equation*

11:30-12:00	Speaker: Rusue Ye Title: <i>A Vectorial Darboux Transformation for the Fokas-Lenells Equation</i>
12:00-12:15	Speaker: Tzvetan Ostromsky Title: <i>Virtual excursion for the on-line participants</i>
12:15-12:30	Speaker: Marianna Dragolova Title: <i>Power of the geometrical progression and dublication in the business</i>
12:30	Closing the conference
